GUIDELINES

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GUIDELINES
FOR
PLANNING - PROGRAMING - CONSTRUCTING
RECREATION PROJECTS
DEVELOPED
AT
LANDSCAPE ARCHITECT WORKSHOP - DSA
WITH
RECREATION RESOURCE SPECIALIST AND ENGINEERS
PARTICIPATING

GUIDELINES

The guidelines developed and accepted through group action by those in attendance at the Workshop were

1. Pinpoint responsibilities as related to leadership and management of man-months and dollar resources allocated to do the job during various phases of planning, programing and construction of recreation project facilities.

2. Establish goals to achieve (Some can be achieved immediately. Others will require several years.)

3. Outline techniques for working together even though responsibilities for leadership and management shifts from district office to state office and between recreation resource specialist and landscape architect in the State Office and the Service Center during the planning and development of recreational sites.

4. Program for funds to make complete detailed surveys and preliminary facility estimates for layout and designs so that estimates for sites listed as a line project for the program year can be made more realistic.

To more clearly present the guidelines in brief form, the work connected with recreational projects is divided into a general topic which is applicable to other topics and work areas -- preliminary planning, preliminary layout and facility design, finalization of layout and design and construction.

General: The district manager under the general supervision of the State Director is responsible for providing the leadership and management of the man-months and dollar resources allocated to the district to plan, program, and carry out commitments in connection with the over-all recreation program. The group wants to make it clear that the District Manager, in addition to being responsible for the program, is also responsible for obtaining and using qualified technical and professional employees to do the work. He can meet this responsibility by using the capabilities in his district and implementing this capability by asking the State Director to provide it from the State Office or request it from the Service Center.

The District Manager must manage the technicians and professional employees on site selection, site analysis, site classification, selection of site facilities and layout of facilities and compilation of data. They do the work. Differences of opinion will develop on what is needed and how best to do the job. In cases where the District Manager cannot bring about concurrence among those doing the work, the problems will be relayed to the State Director who will make a review with his staff and decide the issue.

Preliminary Planning - The areas within which the District Manager is responsible in Phase I are: (1) Site selection, (2) site capability determination, (3) justification for development, (4) type and number of facilities required, (5) access determination -- legal, physical and economical, (6) hazards to public use -- floods, cliffs, mining shafts, poisonous plants, dust, lighting, etc., (7) encumbrance clearance

mining claims, withdrawals, etc., (8) site boundary location, (9) status of land within the boundaries of the site, (10) availability and quality of water, (11) resource use conflicts -- water, archaeology, wildlife, livestock, etc., (12) preliminary field reconnaissance surveys, (13) compilation of data required from work done in fulfilling these responsibilities, and (14) submission of copy of data to the state office.

The time covered by this phase of the work is from the time any work is done in connection with the project until the project is listed in the annual program as a line item project for program year plus 1.

The technical direction to the District Manager for Phase I is provided from the State Office by the resource recreation specialist. He may call on the landscape architect, engineer, specialists in Lands, Minerals, Wildlife, or in other functions for assistance during development of this Phase.

Preliminary Layout and Facility Design - Preliminary layout and facility design in the development of a recreation site covers a time period from the time the project is listed in the annual program for a program year plus 1 until the project is listed as a line item project in the annual program for the program year. The District Manager is responsible for providing the leadership and the management of man-months and dollar resources allocated to the district to do work during this time period in the development of the recreation resource program. He works under the general supervision of the State Director and the technical guidance of

the landscape architect in the State Office and Service Center. The work done during this phase of site planning is: (1) survey of site, (2) preliminary layout of facilities on site plan (3) on-ground facility layout check, (4) preliminary design of facilities, (5) concurrence from recreation resource specialist and landscape architect on type of facilities to place on the site and the layout plan. The District Manager will use his staff to its fullest capability in making site surveys. He will request the landscape architect from the state office or Service Center to make the preliminary layout of facilities on a site plan. Only landscape architects should be used to prepare the layout plan for the site. This plan consists of placement of recreation facilities such as tables, fireplaces, toilets, roads, trails, water system, guards, disposal, etc. on the site plan for specific location. To make a layout to conform with the physical environment requires the know-how of a professionally trained landscape architect. We must take advantage of their capabilities in this area of work. It is the responsibility of the district manager to use these professionals in preference to technicians or professionals in other areas of work.

Finalization of Facility Layout and Design - The finalization of facility layout and design will be done within a period of one year. It begins after the site has been entered in the annual program as a line item project for the program year and ends when it is entered in the annual program as a line item project for the budget year.

The work to be accomplished during this period is (1) finalization of layout plan; (2) complete facility design and specifications; (3) state office submits plans, specifications and other data to the Service Center for preparation of Invitation to Bid.

During this work period, the landscape architect is responsible for finalizing the site layout plan to conform with the aesthetic value within and surrounding the site. He provides the leadership required to get the assistance from recreation resource specialist, engineers and others to do the work and get concurrence for the layout plan and designs from all concerned. He generally works under the general supervision of the Chief, Division of Engineering. The engineers are technically responsible for structural facility designs. This includes roads and trails. The architect is technically responsible for the design of buildings to be placed on the site. The design of all facilities will conform with the type the landscape architect has selected for placement on the site. Where differences of opinion occurs, the State Director will hear the case and make a decision on what shall be done. The work is done primarily at the State Office with assistance from the Service Center as required. The final layout plan and design should be reviewed by the District Manager prior to submission for preparation of Invitations for Bid.

Construction - The District Manager is generally designated as Contracting Officer's Authorized Representative. His responsibility in this role is two-fold. He is responsible to the Contracting Officer to assure that

construction work is done in conformance with plans and specifications. He also has a technical responsibility to his staff and the State Director's staff. To carry out these responsibilities, he appoints a qualified on-the-job inspector who performs the role of getting the job done as required under terms of the contract. During construction he requests the landscape architect, and in some cases, an engineer, to evaluate the quality of work performed during construction.

It is the responsibility of the Contracting Officer's Authorized Representative to make acceptance of the project after construction is completed. Before accepting the project, it is the responsibility of the District Manager to get concurrence from the landscape architect and engineer that the project has been constructed in conformance with plans and specifications.

The work in connection with the planning and development of recreation resources on Public Domain Lands should be funded as follows: 1210 funds should be used for site planning work until the site is listed as a line item project in the program year plus 1. This is the period of time covered by Preliminary Planning. The 2120 funds should finance preliminary layout and facility design, finalization of layout and design and construction.

Detailed surveys and preliminary designs and cost estimates should be completed before the site is listed as a line item project in the program for the budget year. This is a must if we are to get away from

the confusion, frustration and delays that result from entering recreation sites in the annual program as a line item project for the program year without realistic estimates on what is to be done, where it will be done and what it will cost to do the job.

More thought and effort should be given to the coordination of planning for roads and recreation sites. Recreational developments provide a form of resource the public wants. Roads to and through recreational sites provide access so that people can use this form of resource.

The conferees therefore recommend planning to provide access to and through recreation sites for construction with 3100 funds. Such a road should be constructed the same or the year prior to the construction of facilities on the recreation site.

The conferees realize that the goals set forth in financing the work cannot be immediately achieved. They do, however, strongly recommend that all concerned work toward eventually achieving them. Unless we outline ways and means to do a better job with greater output, for public benefit and set goals to accomplish them, we will continue to spend too much time and funds on problem solution that results from lack of coordinated effort, realistic plans and cost estimates.

The papers presented at the Workshop and summaries prepared by panel chairmen contain more details on subjects discussed. These are in the appendix section.

WORKSHOP EVALUATION

EVALUATION OF WORKSHOP

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6
UNITED STATES GOVERNMENT

Memorandum

DIVISION OF ENGINEERING
D. S. C. SEP 2 8 1967

Rt.	Name	Act.	Init.
1	Chief	2	
2	Secy.	6	
	D. & C.		
	Cad.		
	Carto.		
	M. C.		

1. Action 3. Signature 5. See me
2. Info 4. Comment 6. File

TO : Chief, Division of Engineering, DSC

DATE: September 26, 1967

1400-410 (D-734a)

FROM : Chief, BLM Training Center, Denver

SUBJECT: Evaluation - Engineering Recreation Site Workshop, Denver

As I indicated last Friday, I have never seen a conference director who seemed to me to have his objectives more clearly in mind than you did in your meeting last week. I think that this paid off for you very well in the conduct of the conference itself. You were able to keep a fairly vigorous discussion going for the entire two days. It was clear to me that, with few exceptions, your conferees were interested and actively involved.

Your clear definition of objectives helped you override many of the typical irritants such as hard chairs, street noises, and relatively crowded quarters.

This two-day session suffered somewhat from being tacked on to a preceding three-day conference. For one thing, this meeting might have been better spread over two and a half days earlier in the week. It could have been held in a better room except for the location there of the preceding conference. Certainly, you did not get the best attention or efforts of those who had already been stretched for the three preceding days.

Because you began with a clear set of problems to solve, you created an opportunity to do some productive training. At this stage the benefits have been realized only by those few people at the workshop, and benefits to them can be largely diminished if there is not some follow through. You have indicated plans to initiate some recommendations for Bureau level action and to produce a transcript of workshop proceedings. This can all be healthy production. I would like to suggest, however, that a complete transcript of this meeting should include a plan for training implementation of some kind at the State and District levels. Otherwise the use of the transcript will be spotty, and there will be no way in which the results of that will be fed back. This need consists of Service Center and State level staff people trying to identify the teamwork responsibilities of themselves and others located at the District levels. It is unlikely that these relationships would be related in exactly the same terms by the District people.

The definitions of responsibilities stated in this meeting were not stated once and for all time. Therefore, the reactions of the people at the District levels ought to be encouraged, analyzed, and fed back somehow to most of the people in this session. It would, therefore, be very helpful if Service Center and State representatives could be present at a number of training efforts in some of the Districts.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

For positive evaluation of the success of this workshop, you should ideally take your statement of objectives, as refined by reactions at the District level, and do some checking in the field to determine if these objectives have been met.

What I have described is a fairly complete approach, follow through, and realistic evaluation. If you do the job that thoroughly it will be the first time I have seen a training effort in BLM carried out that completely. If the Training Center can help in some further efforts, we would appreciate the opportunity.

In the meanwhile, I want to congratulate you on the way you organized and went about this project, as I firmly believe that insured the success of the meeting itself.

APPENDIX - Discussion
Summaries and Papers

APPENDIX - PAPERS AND SUMMARIES

FORWARD

Administrators and staff employees in the Bureau of Land Management involved in providing the public with various types of facilities to accomodate them in their recreational endeavors have encountered many problems. We recognize and admit these problems. We are willing to discuss them as a means to better understand them. We have a desire through group action to solve or recommend a solution to them. This is evidenced by the problems brought to our attention by state directors and the coming together of this group to explore and find out "who does what and how to do it."

In preparation for this workshop, the State Directors in the DSA were requested to submit a listing of problems encountered in planning, programing and constructing recreation projects. I have summarized and consolidated these problems under twelve headings. One or more states in the DSC indicated problems in one or more of the sub topics under each of the twelve headings. They are:

1. Site Selection
   - By Whom
   - Funding
   - Name and location
   - Land status
   - Recording data
2. Site Classification
   - By Whom
   - Funding
   - What is included
   - Recording data

3. Site Planning
    - By Whom
    - What is included
    - Funding
    - Recording data
    - Review
4. Site survey
    - By Whom
    - Funding
    - Type
    - Coverage
    - Controls
    - Recording data
    - Review
5. Site Layout
    - By whom
    - Funding
    - What is included
    - Ties for location control
    - Recording data
    - Review
6. Facility design
    - By-whom
    - Design plan
    - Review
    - Funding
7. Specifications
    - By whom
    - Review
    - Funding

8. Construction
    - Bid data
    - Invitation for bid
    - Award of contract
    - Contract administration
    - Technical inspection
    - Acceptance of work
    - Funding
9. Maintenance
    - By whom
    - Inspection of facilities
    - Funding
10. Coordination of work effort
    - By whom
11. Timely scheduling of work and funds
12. Technical and professional assistance required to do the job
    - Source
    - Timely requests
    - Timely assistance

Throughout our discussions we must keep our communications processes directed to the problem not toward people. By doing this we can be frank, sincere, and realistic in presenting our thoughts. We must have and maintain an attitude of "helping" not condemning." We must from the beginning recognize the difference between thoughts based on opinions

and thoughts supported by cases, experimental data, and people who are considered authorities in a specific area of work. We should come up with a solution or a recommended solution for each problem discussed.

Otherwise, we will not have fully accomplished the goals set for this workshop. The benefit BLM will get from this workshop and the satisfaction that will come to each of you depends on what use you make of the technique in problem solution brought out during this workshop and how you make use of the recommendations made by this group.

SUMMARIES

A REVIEW OF DISTRICT RESPONSIBILITIES
IN PLANNING RECREATION SITES

CONCLUSIONS FROM GROUP DISCUSSIONS BY PANEL CHAIRMAN

LYNN FERGUS

CONCLUSIONS OF THE GROUP

The general consensus of the group was that the district has the responsibility for the site planning. Although the district has the responsibility, they do not necessarily do all of the work. If the district manager does not have the staff to handle the entire project, he should go to the State Director for help in those areas where his staff is deficient. It is important that employees from the State Office and the Service Center fit into and work with employees in the district office and function as a unified team to do the job assigned to them. The responsibility to see that the project is carried out lies in the district manager.

The State Director is responsible for BLM program in the State. The District Manager functions and operates under the guidance and supervision of the State Director.

A REVIEW OF RESPONSIBILITIES OF THE STATE OFFICE
AND
SERVICE CENTER IN PLANNING RECREATIONAL PROJECTS

PAPER BY

MAC RAY JOHNSON

CONCLUSIONS FROM GROUP DISCUSSIONS BY PANEL CHAIRMAN

E. F. HOLMES

CONCLUSIONS FROM GROUP DISCUSSIONS

1. The State Office establishes the overall state priority.
2. The State Office is responsible for approval of site plans and construction drawings where construction is less than $50,000, irrespective of where the drawings and specifications were prepared.
3. The Service Center will approve and review the technical aspects of plans for projects $50,000 and above prior to administrative approval at State Office level.
4. The State Office and Service Center are to review the recreation construction program 18 months prior to the construction year to determine which project or portions of a project will be done by whom.
5. Where State Office has a Landscape Architect and that state has agreed to do a project --- the state Landscape Architect will have the design responsibility.
6. In those cases where the Service Center has assumed a project for accomplishment, the Service Center Landscape Architect has design responsibility.
7. Work that can't be accomplished on time by either --- then work toward A-E contract.
8. In those instances where a project is prepared in the Service Center, the State Office conception of the project shall be given

full consideration by consultation before and during preparation.

9. The Service Center Recreation staff will review site sketches upon request of Service Center Division of Engineering for compliance with Bureau standards and techniques.

10. Some basic concepts that should not be overlooked:
    a. The District Manager never loses the responsibility of managing the resources of his district within the delegated responsibilities through the full chain of command.
    b. The Service Center accepts only the technical responsibility in providing assistance to the state in getting the job done. The Service Center does not have a program in terms of resource management.
    c. The Service Center does not take the overflow of work, as such, from a state, but rather to provide expertise in the areas of deficiency not able to be supplied by the state.

Now that this is my summary, I would make these comments:

It is not my role to pursue this subject further. However, even though 297 outlines a sequence of activities and responsibilities, there remains in my view a question in the minds of some-- as to their functional responsibilities and what their role is.

It will be up to you to decide whether more specific clarification should be made.

I do not think you should turn your back on the question posed on: "What educational approaches are being taken to acquaint the District Managers of the role of the Service Center technician?"

A REVIEW OF THE LANDSCAPE ARCHITECTS RESPONSIBILITIES IN THE SERVICE CENTER

PAPER BY

NORMAN WAAGEN

CONCLUSIONS FROM GROUP DISCUSSIONS BY PANEL CHAIRMAN

DON WINSLOW

MAIN CONCLUSION

1. Landscape architectural services are available to all Districts and State Offices by means of the Service Center or in some instances the State Offices.
2. The accomplishment of design (in recreation) is the responsibility of the State Director.
3. Instances where the State Office Landscape Architect seeks consultation on a specific project from the Service Center Landscape Architect, the State retains design control of the project.
4. Instances where the Service Center agrees to take over a project for completion, the Service Center Landscape Architect has design control of the project.
5. Training of field personnel should be conducted by both State and Service Center. The Service Center Landscape Architect will provide guidelines and training to the various State Office Landscape Architects in his Service Area.
6. The Service Center approves the technical sufficiency of all projects over $50,000. States should seek early involvement of the Service Center Landscape Architect to insure understanding from conception to completion of a project.
7. Instruction Memo 67-297, dated July 14, 1967 spells out the Landscape Architect's role in recreation planning.

WHERE DO THE RESPONSIBILITIES
OF THE RECREATION RESOURCE SPECIALIST END
AND THE RESPONSIBILITIES OF THE LANDSCAPE ARCHITECT BEGIN?

SUMMARY OF PAPERS
AND CONCLUSIONS FROM GROUP DISCUSSIONS

BY

LOWELL UDY

Don Winslow:

Responsibilities of the Recreation Resource Specialist (hereinafter referred to as "RRS") and the Landscape Architect (hereinafter referred to as "LA") in the planning phase of a recreation project are delineated as follows:

1. "RRS" - Responsibility ends with the completion of the design narrative.
2. "LA" - Responsibility begins at the layout stage.

Norm Waagen:

The elements of the site layout, which is often misconceived as anything from a loose sketch to a formal drawing, are in reality as follows:

1. It is a basic site plan drawn to the contours of the recreational land resource.
2. It deals with the aesthetic qualities of the landscape.
3. It is not based on measurements of engineering exactness.
4. It is a device which provides background for the finished design. One example of this background is the spacing of facilities to fit the landscape.

Wyn Glover:

Responsibilities in the design of recreational facilities are initially delegated to two BLM employees -- the "RRS" and the "LA". In the discussion of this topic, four preliminary facts were emphasized:

1. It deals with responsibilities and not who actually does the the work of facility design.

2. The "RRS" amd the "LA" do not do all of the work involved in facility design.

3. Other technicians are of should be consulted at various phases.

4. Facilities are defined as man-made features of the recreational development for the comfort and convenience of visitors.

In specific reference to each position, the "RRS" has no responsibility for design of facilities, i.e., his responsibility ends with the completion of the design narrative (collection and compilation of site data). Whereas, the "LA" is responsible for selection and design of facilities plus inspection during and after construction. In the construction phase inspection is limited to concurrence.

The point in time at which the "RRS" turns over the design narrative to the "LA" should be tied into the annual program ---- specifically, during the first two months of the first quarter of the fiscal year. If this is accomplished, line projects will be firm enough to be realistic.

Additional responsibilities in facility design are with the Engineer, i.e. technical sufficiency of recreational development, and with the State Director, i.e. Administration of man-months and dollars.

Del Price:

The final sub-topic dealt with the responsibilities of the "RRS" and the "LA: in programing and anhual work plan. At present, the program year is of major concern as far as programing is concerned. According to the speaker and other participants in the conference, the program cycle needs sophistication. Specifically, more advanced preliminary

work in selecting recreational development priorities is needed in order that commitments may be received from the Washington office by Program Year + 1. To accomplish greater emphasis on PY + 1 and, thus' better coordination, the "RRS" should be responsible for establishing development priorities and the extent of development. Engineers will then have greater lead time in their responsibilities for programming manpower, etc., for the program year.

The idea brought forth in this discussion was supported as a goal to be achieved as soon as possible.

Open Discussion:

There was unanimous agreement that all roads built in a recreation development should be financed with 3100 funds. Funds in the 2120 would be used to build recreation parking areas.

SUMMARY

SITE SURVEYS

BY KEN HANSEN

SUMMARY

By Ken Hansen
Arizona State Office

Responsibilities

Responsibilities of recreation site surveys rest with the State Director, as per Instruction Memo 381, with delegation of responsibility to District Manager.

2. The work is performed by district personnel, within manpower capabilities.

3. Service Center has a limited capability as to actual field data gathering.

Methods: Ron Volz

1. Site Survey is a very important phase of recreation design.
2. Preliminary planning should be accomplished prior to site survey.
3. Methods of survey to achieve topographic map:
    a. plane table method: (2) grid system (b) contour system
    b. "p" line traverse method
    c. aerial photography and compilation

Data Required: Norm Waagen

Specific information requirement standards of site development:

1. Land status
2. Usable water
3. Access

Categories for use:

1. Recreation land
    a. group uses
        1. water test
        2. soil test
        3. vegetative cover
        4. schematic locution
        5. road and truck
    b. Campground: Extent of Development
    c. Minimum Use Area

2. Check list program: Win Glover

How, to Whom and When is Data submitted:

Preliminary site sketch to be implemented by the district is a graphic or narrative drawing.

The site surveys go to SD and then to the Landscape Architect. Then submitted fourth quarter following listing of the program.

Goals in a four year cycle on survey and design money. First quarter C.Y. data on project site submitted to landscape architect.

The two topics under discussion were formulated by the group and a special committee appointed.

1. Site sketch
2. Site survey

All projects listed for program year plus one will be surveyed during the coming work season after listing as line project in program year plus one submitted to the State Office for review of Recreation Resource Specialist. Landscape Architect prepared layout and estimate. Engineer makes preliminary facility design. Cost estimates are computed to use in the annual program for the program year.

SUMMARY

SITE SKETCHES

September 22, 1967

SUMMARY STATEMENT

"Site Sketches"

At the Recreation Workshop preceding this DSC Engineering Workshop, a small committee was assigned the task of studying the present system of developing site sketches.

The committee is to be expanded to include representation from Engineering. Tentative assignments, subject to the approval of the State Directors concerned, are as follows:

Committee Chairman: Bob Theodorson, Recreation Resource Specialist, Utah State Office

Assistant Chairman: Ken Hansen, Chief, Division of Engineering, Arizona State Office.

Members: Carl Stegall, Recreation Resource Specialist, Arizona State Office, O. B. Howell, Recreation Resource Specialist, Nevada State Office MacRay Johnson, Landscape Architect, Utah State Office

This committee is being asked to study the present system and recommend changes, if any, to the Director, 712e by March 1, 1968.

One tentative conclusion from this Workshop is that "site sketches" are not adequate for providing accurate engineering estimates. As more detailed plans are developed by the landscape architect, these should be the basis for programing for construction funds in recreation.

D. M. Winslow
Landscape Architect
Washington, D. C.

It was the considered opinion of some of the committee members that the primary thought of M. L. 9152-12-A was to permit the district to become a part of a project by performing a service which any of the district's field personnel could do without hav~~e~~ing to be a specialist in the recreation field, thus placing the prime responsibility in the district.

REPORT OF COMMITTEE ON SITE SKETCHES

The committee, composed of O. B. Howell, Don Winslow, Carl Stegall and Lynn Fergus, concur that additional consideration is necessary to pinpoint positive procedures in the preparation and disposition of a site sketch by district personnel as to: (a) when prepared (b) how prepared (c) what it should contain (d) how the district processes this information (e) what is the chain of sketch movement from district to the State Director (f) who gets it first, second, third, fourth, etc. in the State Office (g) when is the Service Center involved and (h) where does responsibility lie during each operation.

As the above problem was assigned on September 19, to a committee during a conference in this city, this committee feels that more time is needed to further study the question. A report from the original committee will be forwarded to each State when a satisfactory solution is obtained.

O. B. Howell OBH

D. M. Winslow DMW

Carl Stegall C S

Lynn Fergus

SUMMARY

LAYOUT OF FACILITIES

BY

NORM WAAGEN

SUMMARY STATEMENT

LAYOUT FACILITIES

In summarizing this panel discussion, I would like to present a few thoughts regarding "overall perspective", the assignment Craig Tocher had, and couldn't give. I'm sure I'm not alone in saying, "I'm real sorry the fellows from the other States couldn't stay and participate and get as much out of this as I feel we have done".

Lynn gave us a rundown on facility placement distances, and the use factors involved. A little lively discussion occurred when he expressed his views concerning the use of a four unit toilet - being replaced by two twos.

Orienting of tables, grills and warming circles relating to campground construction. Water hydrants and wells were also covered.

Dale Long discussed access roads, assuming recreation use, with control factors of quality. He briefly explained method of road locating, P-line contour and centerline with a consideration for photogrammetry in P-line location. He introduced us to some new concepts of road design, which emphasized the aesthetic and scenic values and the scenic corridor and vistas created therein.

Slides to illustrate various functional roads, using the new concept for design were shown. This new concept is not only more interesting but really a great improvement in every respect.

Controls - Bob Wiles

The purpose of controls is to orient someone familiar with the site to specific ground features (references). The controls are also used to establish the location of the project site in relation to cadastral survey corners.

The horizontal and vertical control, including the baseline is established during site survey and is used as reference for layout of recreation facilities.

Types of control are (a) location (b) construction.

Location control includes the baseline and some of the points established for the site survey and is the point of beginning for transferring the location of facilities from the drawings to the ground. Location control markers should be of a permanent type.

Construction control can be of a temporary nature, and is based on the location control. It is used for construction road staking and other facilities.

Lloyd Pierson's sign discussion was presented with his usual candidacy and interesting narrative.

The types of signs were traffic control, informative, and interpretive. Design included color, form, lettering, identification, and the symbol.

Design a sign for the area, when the area is designed, and design the area for the intelligent use of signs.

Place the signs to complement the landscape in a harmonious way so one won't be distracted from the message.

Consider when placing a sign, the person reading it may want to use it in a photo, and may be moving fast.

Entrance signs should be placed to signal a change in management or use, to invite use, deter misuse, and they should have a feeling of homogenousity with the area. Maintenance and evaluation were also discusses

SUMMARY OF DESIGN FACILITIES
AND CONCLUSIONS FROM GROUP DISCUSSIONS BY PANEL CHAIRMAN

BY

DALE LONG

By Dale Long

DESIGN FACILITIES

1. Site Preparation (Norm Waagen)

Norm discussed the meritorious points of homogeneous use of materials, structures, color and texture in designing a recreation area. A brief discussion was conducted on standardization of recreation facilities and structural compatability with several illustrations of contrast and poor use of materials. Recreation preparation means preparing the area for visitor use by providing proper facilities and area design with consideration given to protecting the site from overuse or vandalism. This should be done without being obvious.

2. Water Supply -(Ray Brossart)

Ray gave discussion on how to design water systems for recreation areas. Design must be based on first-demand; second source of supply. Things to consider on supply source are: Is it existing or must it be developed; What is the yield and drawdown time if it is a well; Quality of the water both bacterial and physical; layout of system, hydrants, hook-ups, etc.; location of storage tank. Ray then gave an illustration of typical recreation area water system and a typical cost involved.

3. Access Into and Within Recreation Areas (Don Winslow)

Discussed three elements to consider in design. Economics, design speed, and site drainage.

Design Speed - Transition from 70 mph freeway to 3 mph campground road. Interior Campground road should be designed for pedestrian speed.

Economics - Must be considered in design of recreation roads.

Site Drainage - Questioned the need for ditches in many recreation areas. Ditches should be avoided if possible because they are hazardous to people using the recreation area.

5. Scenic Roads - (Ken Hansen)

Ken gave a general discertation on layout and design of scenic roads. Involves the road as seen from the landscape and the landscape as seen from the road. Road landscaping was neglected in early design of roads. It has come to forefront recently. More and more roads are being used for pleasure traffic rather than commercial traffic. The engineer as well as landscape architect has a responsibility to consider the aesthetic values involved in road design. Vertical and horizontal alignment should flow with the country and avoid abrupt grade changes. Grades should be flattened near scenic vistas. For scenic roads a comprehensive landscaping design must be carefully planned.

6. Recap - Plans and Specifications (Ron Volz)

Ron passed out copies of typical plans and specifications for recreation area construction. Plans are made for use of contractor primarily. Not all dimensions need be shown. Same thing does not have to be shown on plans and specifications. This can lead to errors and confusion. Bill

of materials usually should not be shown on drawings.

Discussion was conducted on the typical plans and specifications put out by DSC. Asked State and W. O. people to make further comments on these plans and specs. These are not necessarily finished products. We want to continue to improve them and would welcome suggested plans from the states.

SUMMARY

CONSTRUCTION AND INSTALLATION

BY C. L. ROPER

C. L. Roper
D&C Engineer
Utah State Office

SUMMARY

Construction & Installation

The results of all planning, design and the contractor's efforts unfold during the construction and installation of a project. At this critical and important time of project development it is extremely important that qualified construction management personnel are available and that proper working relations with the contractor are maintained to produce the end results in accordance with the plans and specifications.

Ground Location of Facilities and Access by Lynn Fergus

Ground location of the various features of the project must be established before construction begins and marked or staked in such a manner that it provides a layout and guide of the required work for the contractor or force account crew to accomplish. Under certain conditions the layout stakes also furnish the inspector with reference points for checking the construction work.

Ground location for construction must be tied effectively to the control established in the original survey. It is desirable to have the designer supervise the field layout and placement of construction stakes so that slight adjustments can be made to the plan so it will fit the ground.

The alidade is generally used in transferring the design plans to the ground; however, other methods such as transit and tape could be used depending upon site conditions and the project features.

Construction Staking by Gerald Jessen

Construction staking is generally required for clearing, roadway construction, building and shelter construction, borrow areas and utility lines. The extent of construction staking required depends upon the size of the project, data obtained during the original site survey and whether the construction work will be accomplished by contract or force account.

Inspection of Work During Construction by Duane Tabb

Project inspection is an important aspect in the successful completion of any contract. The inspector must be well qualified in the field of construction work in addition to being a person who can effectively communicate and work with a contractor so that the final product will be in accordance with the intended plans and specifications. The inspector's job in the BLM includes, but is not limited to, the following:

1. Construction staking.

2. Testing.

3. Adequate inspection to insure compliance with the specifications.

4. Liaison between contractor and contracting officer or other BLM personnel.
5. Contract Log.
6. Labor compliance checks.
7. As-built drawings.

Acceptance of Completed Job by Hank Hammersmark

Final acceptance of a contract is made when the contractor has in the opinion of the COR completed all work and made the necessary cleanup as required by the plans and specifications. A certificate of final payment can then be prepared and submitted to the contracting officer.

Partial payments may be made to the contractor for work actually completed during the progress of the work. Work inspection should coincide with an agreed-upon partial payment schedule.

The final inspection can be made and final acceptance given rather promptly if prior inspection work has been adequately accomplished during the construction period.

Other Comments:

Certification certificates or catalog data for compliance with specification requirements can be submitted to COR for acceptance of various materials or equipment of small quantities for which the districts are unable to perform the required specification tests. It is desirable to have a clause in the contract indicating such procedures.

A. A REVIEW OF DISTRICT RESPONSIBILITIES IN PLANNING RECREATION SITES

DISTRICT RESPONSIBILITY IN SITE PLANNING

Presented by
Delmar Price
Recreation Resource Specialist
Denver Service Center

A. The District is responsible for:

1. selecting site.
2. determining the site's capability.
3. determining the need for Development.
4. determining what Development should go into the area and how much.
5. insuring that access is legally, physically, and economically possible.
6. insuring that the site is safe (i.e. flash floods, cliffs, mining shafts, poisonous plants, wind, dust, lightning, etc.)
7. insuring that the site is clear of all encumbrances:
    a. Mining claims
    b. Withdrawals
    c. Others
8. precisely locating the boundaries of the site.
9. being aware of any Resource conflicts
    a. Water is a key to all resource uses -

        archeology

        wildlife

        domestic livestock

sawmill

ore reducing mill

etc.

10. insuring the availability of water.

    a. spring, well, creek, etc.

    b. purity, bacteria and mineral

    c. ownership

    d. permits to drill, or use

11. preparing the program, including cost estimates.

12. insuring that preliminary field survey and topographic map is completed.

13. insuring that site layout and construction drawings are completed.

14. insuring that the invitation to bid is prepared and submitted at the proper time and to the proper people, so that the site can be completed on time and with the greatest economy.

B. Too big a job for one man

1. District Recreation Specialist, key man

2. Other District people who should be involved

    a. Engineer

    b. Lands man

    c. Minerals specialist

    d. Wildlife specialist

    e. District manager and people from all activities

3. State office
    - a. Recreation specialist
    - b. Landscape architect
    - c. Engineer
    - d. Others
4. Service Center
    - a. Landscape architect
    - b. Engineer
    - c. Architect
    - d. S&T Recreation Staff - specialized assistance, i.e. interpretation, etc.
5. Outside assistance
    - a. USGS hydrologists
    - b. State Highway Department
    - c. County Road Division
    - d. Specialized people for historic, geologic, etc.

C. We in State Offices and Service Centers must help District people assume their proper roles.

B. A REVIEW OF RESPONSIBILITIES OF THE STATE OFFICE AND SERVICE CENTER IN PLANNING RECREATION PROJECTS

A REVIEW OF RESPONSIBILITIES OF THE STATE OFFICE AND SERVICE CENTER IN PLANNING RECREATIONAL PROJECTS

BY: J. McRay Johnson
Landscape Architect
Utah State Office

In discussing this topic I am assuming the responsibilities of a State Office with a Recreation Specialist and a Landscape Architect are similar to the Service Center's responsibility to a State without these two technical positions. In reviewing the responsibilities of the State Office and Service Center in planning recreational projects, I will use the material contained in the Recreation Development Handbook and Instruction Memo No. 67-297, subject: Planning for Recreation Construction.

The initiation of the proposed recreation project most often originates on a district level where the feasibility, needs and district priority of the project are ascertained. Then in cooperation with the State recreation staff, the district, including the district manager, the area manager, and the district recreation staff man evaluates information, ideas, directions, needs, and management planning. With this background of information and the development of preliminary site sketches, the State Office establishes the overall State priority for this project. The State Office is responsible for approval of these site plans and construction drawings where construction is less than $50,000, irrespective of where the drawings and specifications were prepared.

The responsibility of the planning process in the State Office is in the Division of Engineering and Recreation Staff. Their separate responsibilities are:

Division of Engineering:

a. Cooperates in mock-up of recreation development plan.

b. Drafts the final recreation development plan.

c. Cooperates with district in securing accurate site data and surveys.

d. Prepares preliminary site plans and estimates.

e. Prepares construction drawings and specifications.

f. Makes periodic inspections during the course of construction and final inspection.

Recreation Staff:

a. Uses technical personnel in State Office and Service Center to plan and coordinate mock-up of recreation land development plan.

b. Reviews and recommends ideas and comments on recreation development plans.

c. Drawings will be checked by the State Office for compliance with Bureau standards.

The State Director is responsible for the accomplishment of the recreation inventory, recreation planning, and the assignment of priority to State projects to be considered in the Bureau's programming cycle.

The Service Center will work closely with the State Office without a full design staff to establish site planning priorities well in advance of needs. The Service Center will indicate what site data is required from the State Office on projects to be designed by the Service Center. The Service Center will review and approve the technical aspects of plans for projects $50,000 and above prior to administrative approval at State Office level. If there is a difference of opinion in the drawings and specifications, and this difference cannot be resolved within 10 days, the drawing will be forwarded to the Director (710), for final determination.

The State Office and Service Center are to review the recreation construction program 18 months prior to the construction year to determine which project or portions of a project will be done by whom. Where the State Office has a Landscape Architect and that office has agreed to do a project, the State Office Landscape Architect will have the design responsibility. In those cases where the Service Center has assumed a project for accomplishment, the Service Center Landscape Architect has design responsibility. If it is determined that neither can get the job accomplished on time, then work toward providing specifications for A-E contract.

Close coordination between the Service Center Division of Engineering and the State Office is mandatory in the survey and design of projects. At the time AWP's are submitted, the Service Center

and State Office will know by project who will do the S&D and which projects will be done by A-E contracts.

In those instances where a project is prepared in the Service Center, the State Office conception of the project shall be given full consideration by consultation before and during preparation. The Service Center Recreation Staff will review Site Sketches, upon request of Service Center Division of Engineering, for compliance with Bureau standards and techniques. When the Service Center assumes responsibility for project preparation certain field data will be furnished by the State Office or District Office.

The most important item to consider after all these responsibilities have been considered is full cooperation with adequate and timely communication between the various offices. The planning of recreational projects takes much time and effort by everyone involved if the result is to be aesthetically appealing, functional, easily maintained and a credit to the Bureau.

C. A REVIEW OF LANDSCAPE ARCHITECTS RESPONSIBILITIES

IN THE STATE OFFICE AND SERVICE CENTER

Donald M. Winslow
Landscape Architect
Washington Office

September 21, 1967 Workshop
Denver, Colorado

A Review of Landscape Architects' Responsibilities in the State Office and Service Center.

Before outlining responsibilities of the Landscape Architect, let's define the "critter." Civil Service has classified the Landscape Architect in the general engineering series (807). The work definition is broad enough to include a range of activities from land-use planning to detailed design.

By contrast, Civil Service has classified the Recreation Resource Specialist in the general administrative series (301). The Recreation Resource Specialist may be drawn from a number of professional backgrounds, including forestry, landscape architecture and geography.

In BLM, the Service Center landscape architect performs two principal functions: (1) He serves as an arm of the Washington Office by reviewing projects over $50,000. (2) He provides on-the-ground services to State Offices which do not have a landscape architect. What are these projects and services? To answer this question requires us to briefly look at BLM's legislative and administrative history. The following mileposts have shaped BLM's organization and use of personnel:

A. Taylor Grazing Act of 1934 (provides interim management of public lands, pending disposal.)

B. Merger of G.L.O. and Grazing Service into new Bureau of Land Management in 1946.

C. Oregon's O & C lands multiple-use legislation, 1937.

D. Classification and Multiple Use Act of 1964. (First bureauwide authority to manage for recreation.)

E. Formation of Service Centers, 1965 (Provides technical expertise and guidance to field offices.

The Service Center Division of Engineering's role is described in Instruction Memo 67-297 dated July 14, 1967. The landscape architect in the SC is responsible for seeing that all Bureau recreation design and landscape architectural work is of a professional caliber and meets BLM's policy goals and objectives. This role ties the development work of the various State and District offices into a cohesive effort.

State Office landscape architects need to assure themselves that their efforts generally conform with the Bureau's design and construction objectives. The Washington Office depends upon the Service Center landscape architects to keep the States and Districts served and informed.

A REVIEW OF THE LANDSCAPE ARCHITECT'S RESPONSIBILITIES IN THE SERVICE CENTER

LANDSCAPE ARCHITECT WORKSHOP

First Day 2:00 - 4:00 Norm Waagen

The Landscape Architect in the Service Center has many diversified responsibilities. His job description (if it's at all comprehensive) covers a minimum of two pages -- mine has three, single spaced, and ends with "and other duties as assigned". Perhaps a brief description of Landscape Architecture may start this off on the right foot - this was taken from the Colorado charter registering Landscape Architects:

"Landscape Architecture means the performance of professional service such as consultation, investigation, reconnaissance, research, planning, design, or responsible supervision in connection with the development of land areas or land use, where and to the extent that the dominant purposes of such service is the preservation and development of existing and proposed land features, ground surface, planting, natural features, and aesthetic values. This practice shall include the design, location, and arrangement of such tangible objects and features as are incidental and necessary to the purposes outlined herein, but shall not include the making of land surveys or final engineered plats for official recording, integration of design of structures of earth, or other construction materials."

Breaking this down to something relative and tangible, layout and design of campgrounds and other public-use facilities are a major part of our

function. Administrative site layout and design, including sprinkler systems and planting plans, are a minor but important part in that this is our real contact with the public and their reaction is determined by what they see. It behooves us to do an outstanding job here. The review of plans, when requested, even though under $50,000, the design and producing of guidelines for recreation, and associated work with engineers here at the Service Center on projects where Landscape Architecture disciplines are required, is also a part of my function.

Generally, when a state has a Landscape Architect, the Service Center Landscape Architect rarely gets involved, except on occasions when special help is needed or the work load necessitates calling me in.

When a Recreation Lands Study is made the Service Center Landscape Architect becomes involved as part of the team. He works at the request of the Service Center Recreation Specialist, as a consultant and designer in the field and as coordinator and designer as the plan progresses.

Other areas of responsibility are road and trail locations, control points for over-looks and specific needs (such as areas containing significant archeological or aesthetic values) are coming to the front more all the time and are going to take more time commensurate with our program. I have a question to present at the end of this narrative that pertains to this.

I was fortunate to come from a state where we had both a Recreation Specialist and a Landscape Architect, the operation was smooth and efficient. Occasionally the State Landscape Architect wears more than one hat and his responsibilities are proportionately diversified. When you are a Recreation Specialist, Landscape Architect, Safety Officer, and Supply Clerk, you just haven't enough hours in a day except to keep up with forms and filing - the rest must be dry lab. I've entered the picture a few times at this stage of the game, and many problems are created because of it. This should be resolved as the work load demands, and if things continue to progress as they have in the past, we haven't long to wait.

A question we may throw out for discussion at this time is, "How is an engineer running a "P" line on a road going to acquire the immediate services of a Landscape Architect to assist him in locating and defining control point to one of these areas of interes?" If he continues without assistance he could feasibly be miles from the point he would otherwise be if properly directed and will have to retrace his steps.

D. WHERE DO THE RESPONSIBILITIES OF THE RECREATION RESOURCE SPECIALIST END AND THE RESPONSIBILITY OF THE LANDSCAPE ARCHITECT BEGIN?

Donald M. Winslow
Landscape Architect
Washington Office

September 21, 1967 Workshop
Denver, Colorado

Where Do the Responsibilities of the Recreation Resource Specialist End and the Responsibilities of the Landscape Architect Begin?

In the last panel we discussed the role of the landscape architects in the Service Center and in the State Offices. In planning, the distinction between landscape architect and recreation resource specialist has been at times fuzzy.

Land-use planning is the basic responsibility of the District Manager and State Director. The manager may delegate different phases of planning to economists, range management specialists, foresters, engineers and landscape architects. No single profession has been assigned the task of planning.

Planning positions have been established in the Service Center's Division of Lands and Minerals Standards and Technology. Some of these positions are being filled by specialists with Masters degrees in Regional Planning.

Recreation planning is normally carried out by Recreation Resource Specialists. We are spread so thin in this Bureau that we have been unable to provide planning teams with a broad enough professional base. Unquestionably if we had these teams, they would consist of at least one Natural Resource Specialist (Forester, Range Management or Wildlife Specialist), a Lands and Minerals Specialist, a Civil Engineer and a Landscape Architect. In addition, as the need arose, an archeologist, geologist and economist.

In the meantime, with small staffs, every available professional should be brought into the planning picture. In BLM, the landscape architect exercises the leadership in site planning and facilities design; the recreation resource specialist exercises the leadership in recreation land planning (area or master planning).

If the recreation resource specialist is (by training) a landscape architect, he will need assistance from natural resource specialists (foresters, wildlife specialists, etc.). If the recreation resource specialist is (by training) a forester or wildlife specialist, he will need assistance from a landscape architect.

Where do the responsibilities of the Recreation Resource Specialist end and the responsibilities of the Landscape Architect begin? Essentially, when the planning effort is no longer in narrative form, but needs to be shown as a graphic plan, the landscape architect enters the picture. The recreation specialist then should assure himself that the picture on paper represents the word picture of the land use narrative.

In no instance should the "Site Sketch", prepared by the recreation specialist, be more than a conceptual land use plan to accompany a land use narrative. To refine the "Site Sketch" would duplicate the effort of the landscape architect's site plan.

WHERE DO THE RECREATION SPECIALIST RESPONSIBILITIES END AND THOSE OF THE LANDSCAPE ARCHITECT BEGIN

In Layout

LANDSCAPE ARCHITECT WORKSHOP

First Day 2:00 - 4:30 Norm Waagen

What is layout? It seems the term 'Layout' refers to everything from a very technical drawing to a loose, free and easy sketch.

Our use for this, in my estimation, refers to the basic plan drawn over a contour map (with vertical and horizontal control) giving due consideration to radii of curves, grade, natural barriers and any other thing incidental to the plan. But not to a degree of engineering accuracy that could fit in a contract - initially this plan deals with aesthetic qualities and the relationship of space, buffers and use to one another.

My interpretation of this "Ideal" way this was set up to function involves a Recreation Specialist well trained in basic design, and the other disciplines necessary to properly and honestly evaluate a given Recreation area, defining it very generally. A rough sketch is necessary (you'll note the word layout was not used) indicating approximate type, quantity and other essentials to give the Landscape Architect as much background and technical data as possible in order that he may produce a feasible design.

Campground Layout - Composition - For best operation, large campgrounds should be composed of a number of integrated, though independent, section. The number of campsites per section will depend upon topography and should be reconciled with an economical distribution of comfort stations or vault toilets. All campgound elements should be carefully fitted to both topography and landscape.

Campsite Spacing - Density - Density of campsites within a campground will vary from three to eight per acre, depending upon the category of campground.

Spacing - Generally, campsites will be spaced about 100 feet apart. Actual spacing will be determined by the Landscape Architect to reflect the conditions on-the-ground.

In some instances, it may be desirable to group numbers of campsites together to take advantage of special site conditions or attractions. This clustering of campsites will be offset by generous buffer strips and open spaces between groups. Too generous spacing of campsites and roads should be avoided because the cost of constructing roads and utility lines increases proportionately to spacing between sites. Less spacing diminishes the visitor's camping experience.

In the past I've seen areas developed without consideration for the overall development, a Recreation Lands plan, known commonly as a

Master Plan, this can cause the remainder to be bottle-necked, underdeveloped or an expensive change. Any changes are expensive, especially one that could have been averted with a little proper planning. This, of course, is one of our main purposes in meeting here at this time. I brought along a typical Campground Layout to show the amount of detail that needs to be considered for a development of this type.

Where Do the Responsibilities of the Recreation Resource Specialist end and the Responsibilities of the Landscape Architect Begin in Facility Design

By W. G. Glover

Recreation Facility Design

I would like to remind you that the topic deals with responsibilities. It doesn't say a word about who does the work. Now, let's analyze the responsibilities for the design of recreation facilities. I am using the term facility to include everything within the site used by the public for their convenience and enjoyment. To name a few, tables, benches, fireplaces, toilets, water system, garbage disposal, trails, roads, parking areas, guards, etc.

I would like to emphasize that there are two employees at the State Office level who have primary responsibilities for the overall recreational program from inception to completion. They are the Recreation Resource Specialist and the Landscape Architect. In cases where the State Office does not have either a recreation specialist or landscape architect, the State Director should request and use this technical expertise from the Service Center. These employees do not do all the work. They get other technical and professional employees to do part of the job through assignments. This often requires a lot of finesse and tact on their part.

This brings us more specifically to the subject. Actually, the Resource Recreation Specialist has no responsibility for the design of recreational facilities. This does not mean that he washes his hands of the job. It

only means that responsibility for the layout and design of facilities shifts from him to landscape architect. He works with the landscape architect during this phase of the work in the same manner the landscape architect worked with him in the first phase of the work. His responsibilities ended at the "point in time" when he turned over to the landscape architect the data on the site which he is required to prepare on each recreation site. From this "point in time", the landscape architect is responsible for designing the layout for facilities within the site, the selection of facilities and the design of the facilities. He also has a technical responsibility to the contracting officer in inspection and acceptance of each facility, during and after completion of construction.

The problem we need to deal with is when is this "point in time" that the Recreation Resource Specialist gives the site data to the Landscape Architect for specific project sites. I think this "point in time" has to be related to the time the annual program is prepared. I therefore propose this "point in time" to be during the first two months of the first quarter of the fiscal year. On a date within this period of time, the Recreation Resource Specialist will furnish the Landscape Architect with site data for each recreation site to be included in the annual program for the program year. The reasons for this time proposal are:

1. Line project items in the annual program for the program year should be firm enough to be realistic. They cannot be firm until at least preliminary design layout for facilities has been made. This layout should be super-imposed on a contour map. The contour map shall be made with and show vertical and horizontal contours.

2. This design layout is a part of facility design and is the responsibility of the Landscape Architect. It will show the location of each facility and will be checked out for accuracy during the period facilities are designed.
3. The Landscape Architect must have the data compiled by the Recreation Resource Specialist prior to the time the design layout is made by him.

It is important that these two employees work together with each recognizing the responsibilities of the other. They should keep their counterparts in the Service Center advised of their,work, ask for their suggestions and review of plans and specifications prior to submission to the Branch of Administrative Services for preparation of Invitations to Bid. This working relationship is important at the Service Center and between Service Center and State office.

Teamwork is the best way to avoid misunderstanding and embarrassing situations and have full assurance that we have developed the best plan for the site. This is in essence 'working together for the good of all'. This is apphilosophy which we must accept and put into practice if we are to overcome our internal problems in this area of work and get the job done in a satisfactory manner, and at the same time, give the public the most for their investment in recreation.

The Landscape Architect is not required and in many cases not qualified

to actually design most of the structural facilities to be placed on the site. To repeat, he makes the selection of facilities and the site on which each is located. He takes advantage of expertise available in architect for building design, civil engineer for water system design, road engineer for access design, etc. The designs are made under the general direction of the landscape architect. He concurs with the final design for each facility, because this is his area of responsibility. Quite often, the engineer will disagree with the architect. The Engineer must accept the fact that he must design each facility to conform with the shape, size, contour, etc., outlined by the architect. The Engineer is, however, responsible for the technical sufficiency of the structure. Example: Thickness and steel reinforcing for concrete slabs, timber size, etc.

These are good examples of an employee in a position of responsibility using and managing technical expertise available to them to do a job.

This is a big job. Are you prepared to do it in a manner than will bring satisfaction to all concerned? Are you willing and capable of wearing two hats? One as a manager and the other as a worker. To successfully do your job, you not only have to manage people, you also have to perform as a worker in areas where another has the management responsibility.

This thought arises. Someone should have a general responsibility for managing the man month and dollar resources going into the project from

inception to completion. Who shall have this responsibility? My thoughts are: This responsibility must rest with the State Director. To place the responsibility for a given area of work for one class of project, such as recreation, in two or more divisions in any level of an organization with the responsibility of overall management in one of these divisions creates a situation that breeds resentment, discontentment and frustration. This is something a good manager must avoid.

I made a statement earlier that the Landscape Architect had a technical responsibility to the Contracting Officer. In case of force account work, the District Manager is in essence the contracting officer. The Landscape Architect should make periodic inspections of facilities during construction and make final inspection of each facility for technical sufficiency under terms of the contract. His responsibility, therefore, ends at the time he makes technical acceptance of each facility in the recreation site.

E. SITE SURVEYS

ENGINEERING RECREATION SITE WORKSHOP

Denver, Colorado

September 21/22, 1967

RESPONSIBILITY FOR RECREATION SITE SURVEYS

Presented by:
Dale H. Long
Chief, Design & Construction
Denver Service Center

Responsibility for Recreation Site Surveys 9/22/67 8:00 - 9:45

The responsibility for recreation site surveys rests with the State Director of the state in which the recreation site is situated. This responsibility is clearly stated in Article F2 of the Engineering functions part of Instruction Memorandum No. 66-381. This memorandum is understood to be the latest instruction on how the states and Service Centers will function. I understand the recreation part of the BLM Manual is now being rewritten. I don't think the new manual will change the responsibility for recreation site surveys.

Please note that we are talking about "responsibility" and not who will perform the work. The actual work of performing the site survey might be done at any level of the organization. Normally the work is performed by district personnel with possibly assistance from state office personnel. In some special cases, the Service Center might supply survey assistance to the state. In other cases, the survey might be accomplished by an Architect-Engineer firm under contract. Regardless of who performs the actual work, the responsibility for assuring that it is properly done still rests with the State Director concerned.

In connection with the Service Center furnishing survey and basic data gathering assistance, I want to emphasize that our capability in this field is very limited. Basically, the Service Centers were set up to provide professional design assistance rather than surveys. Most of

our personnel in the Branch of Design and Construction are professional people in grades GS-11 and above. It could not be considered as good manpower utilization to send these people to the field to make surveys. This means that, on occasion, we might send people out to assist on a survey when requested. In the Denver Service Center, we have only one Engineering Technician who is specifically assigned to survey work. Up until now, he has been kept busy performing road surveys. He is capable of performing other types of surveys. The only reason that we have kept him on road surveys is that this was the field in which we were receiving the most requests for survey assistance. The Service Center has neither the personnel ceiling or funding to hire survey aids. These support personnel must be provided by the state even thought we provide the party chief.

This is about all I have to say about the responsibility for recreation site surveys. I would be happy to try to answer any questions you may have.

Panel Chairman
Kenneth Hansen
Panel Member
Ronald Volz

Panel Member Subject: SITE SURVEYS: METHODS

The site survey is one of the most important phases of recreation design. All design and layout work is based upon this site survey.

Before any site survey is made, the preliminary planning of the proposed site should have been done. The surveyor should know the type of site, location, probable layout, location of access roads and etc. From this information, he should be able to plan the survey required.

There are several methods of site surveys. Before we discuss methods, let's setup some buides. The preferred scale for a topographic map is 1" = 50' with 2' contour interval. This interval will vary somewhat depending on the terrain. A permanent base line should be established outside of the proposed construction.

We will consider three methods of site surveys. All three methods require a horizontal and vertical control. These controls should tie in existing surveyed lines such as section lines, road traverses, other site surveys, and etc.

Three methods of site surveys are: plane table, 'P' traverse and aerial photography. We will not go into the mechanics of these methods, but will give a general explanation of each.

1. Plane table method: Plot the horizontal control on the plane table. The P.I.'s of the control line or traverse (preferrably a closed traverse) should be used as plane table points. So when laying out a control line, determine your plane table points. When doing the vertical control, a bench mark should be set by each plane table point. This will save time. One can get topo by two methods: Grid system or plot contour lines. I prefer the contour line method because when you leave the field your topo map is complete. (Hint: Use mylar on your plane table. This paper is not affected by the weather and will not shrink or swell).

2. 'P' traverse method: This method is the same as type 3 road survey. You have a traverse, level circuit and cross-sections. Make sure your cross-sections cover the entire area. From this information, one can plot a topographic map. This method is usually used when a plane table will not work efficiently, such as in heavily forested areas.

3. Aerial photography: Is a method of obtaining topographic information by use of aerial photographs. As of now this method isn't used very often in the BLM. At this time, further information on this method will not be given unless there are questions on this subject.

All three methods will give satisfactory results. Terrian, land area and previous experience will usually determine the method to be used.

Mr. Norman Waagen will explain to you the data required for a site survey.

Before we end this discussion I would like to give you an example of site survey. (At this point will give an example, and explain methods used).

LANDSCAPE ARCHITECT WORKSHOP

SITE SURVEYS: Data Required

Second Day 9:00 - 9:45 Norm Waagen

Like people in general, campers come in many varieties. Some poeple prefer the comforts of a travel trailer hooked up to sewer, water and power lines; while others want a saddle for a pillow.

Camping tastes of all shades lie between these extremes. This is why accurate data presents such a problem.

What are people like? How many children do they have? When do they camp? The average camping family is not the wilderness enthusiast or the luxury travel trailer life of liesure type, but is the one that piles into the car to spend a weekend at a nearby campground 75 to 300 miles away. Family size will average 3.6 to 4 persons.

These are a few of the reasons we need data to properly develop for future needs.

LANDSCAPE ARCHITECT WORKSHOP 2nd Day 9:00 - 9:45

Site Surveys Data Required approx. 20 or 25 mins. Norm Waagen

Specific information for various land use often determines the extend and completeness of development. There are a few standard site data determinations that must be made before any consideration of the site for any use whatever can be assumed.

Land status; the lack of determining surface right, mineral-, oil, gas, potash, timber, grazing rights, etc., has fouled us up, no end in our recreation program. Usable water: The simple matter of filing on water has taken its toll also. Access - There are few things more difficult to justify than a developed recreation site on an isolated track of land - without a pre-planned right-of-way to it. We might break these uses into the following catagories.

Recreation Lands: Involving several sites and perhaps different functions for these sites - as an example, a plot of public lands may contain 20,000 acres; in order to determine highest use, traffic count, broken down into

A. Individual cars

B. Pick-up campers - trucks - motor homes

C. Trailers, etc. must be made.

Very often personal contact with the tourist is the only realistic approach, at this time questions may be asked such as: purpose of trip - length of stay - distination - home state - etc. After extensive survey's

have been tabulated and evaluated the equating of parcels for various uses may be determined.

A. Group Use - Perhaps 4-H Clubs, Scouts, and various civic groups will require picnic and group over-nite accommodations.

1 - Water for drinking, and if high-use is anticipated, flush-toilets - data required; current water table, hydrological study.

2 - Soils tests including leeching and capillary action to accommodate toilet drainage structures.

3 - Cover - Is it of a type that can withstand hard use? How dense is it? How mature? Are there open areas for group use?

Ground Cover - type, hardiness

4 - Schematic location - On the over-all, does the area lend itself to the total plan - natural barriers - steep slopes, rock formations, water-streams or lakes could help determine this.

5 - If ramadas or other structures are anticipated - soil stability test trenches for foundations are needed.

6 - Roads and Trails, including parking areas and spurs - Coutour maps, increasing in scale as more detail is needed. Rock out-croppings, ledges, surface water, bog, etc., should be shown.

B. Campground - The previous mentioned data is necessary more or less, depending on the extent of development.

C. Minimum Use Area - Rest stop, information turn out or picnic day use would require data concerning highway right-of-way, deceleration lane, and again detail as needed.

What is the best way of assuring a complete check for data? A request for checklist suggestions floated around some time back - perhaps Mr. Winslow could bring us up to date on this.

SITE SURVEYS BY W. GLOVER INCLUDED IN GUIDELINES

F. LAYOUT OF FACILITIES

BLM-DSC Landscape Architect Workshop
Sept. 21-22, 1967
Denver, Colorado

10:00 - 11:45 Layout of Facilities

Placement of Facilities

Lynn T. Fergus Landscape Architect, Colorado

1. Placement of the family unit
   - a - Spacing - No hard and fast rule should be set on spacing. Spacing depends on several factors: (1) Degree of development (2) Type of development (3) Cover (4) Terrain
   - b - Proximity to water - In no case should any part of a family unit be closer than 50 feet to a live body of water, generally 100 feet.
   - c - Proximity to roads - Some criteria applies here as to spacing. 200 feet is desirable.
2. Placement of Toilets
   - a - Toilets should be within 30 feet of campground road, never in the middle of a loop.
   - b - Spacing - No more than 600 feet between toilets or so that no camper has to walk more than 300 feet.

     Note: Camp units between 60 and 150 feet from toilet receive heaviest use.

c - Size - A four unit vault toilet has no place in a campground. It is better to have more two-unit installations.

3. Placement of Tables

   a - Tables should not be further than 35 feet from parking area in a campground, 50 feet at a picnic area. Walk-in picnic areas and campgrounds do not work in the intermountain west.

   b - Tables should be oriented for morning sun and afternoon shade regardless of elevation.

   c - Place axis of table along the contour.

   d - If there is a view from the site, orient the table so the view is off the end of the table.

4. Placement of Cooking Grills and Warming Fire Circles

   a - Cooking grills should be located 5 to 7 feet from the end of the table.

   b - Warming fire Circles are essential and should be located approximately 6 feet to the side of the table so that the table seat can be used as a bench.

   c - When placing the grills and fire circles keep in mind the foot traffic pattern and also the prevailing wind.

5. Water Hydrants

a - When a pipe system is installed there should be a water hydrant within 70 feet of each family unit. The major costs of a water system are in the collection, storage and piping. A few extra hydrants add little to the cost.

b - There should be a water hydrant with a hose bib within 30 feet of each toilet.

6. Wells

a - When hand pump wells are the source of water supply you usually have only one or two in the campground. These wells should be in a central location, within 25 feet of the road, and each should have a pull-off for parking.

BLM Engineering Recreational Workshop

Sept. 22, 1967 10:00 - 11:45 Layout of Facilities

Topic: Controls Robert A. Wiles

The recreation facilities shown on the project drawings are located on the ground and in proper position by using controls. This control is clearly shown on the drawings so that someone unfamiliar with the site can find the control and lay out the facilities. To do this the control is referenced to some natural features on the ground. The controls are also used to establish the location of the project site in relation to cadastral survey corners.

The horizontal and vertical control which includes the base line is established during the site survey. The information for site design is based on this control, therefore they are established first. The base line is used for the layout of the facilities in a certain area and should be referenced to some natural features. Assuming a contour map is constructed from aerial photography, the horizontal and vertical control points can be used as part of the base line. If plane table and alidade are used, then some of these points may be incorporated into the line.

The type of control can be divided into two different types: (a) Location, and (b) construction. The location control includes the base line and some of the points established for the site survey and is the point of beginning for transferring the location of the facilities from the drawings to the ground. The location control should be of some permanent type marker such as project markers, re-bar or copperweld. The location control should be established outside of any work areas.

The construction control can be of a temporary nature such as wooden stakes or spikes, and is based on the location control. This control is used for construction staking of roads and other facilities shown on the drawings.

Controls are important for recreation site construction to properly locate the facilities on the ground as intended by the designer.

ENGINEERING RECREATION SITE WORKSHOP

Denver, Colorado

September 21,22 1967

ACCESS ROAD LOCATION

Presented By: Dale Long
Chief, Design & Construction
Denver Service Center

ACCESS ROAD LOCATION 10:00 - 11:45 9/22/67

Access road location is defined as the comparative field examination of alternate routes identified by the reconnaissance survey. The objective of the reconnaissance survey is to eliminate unfeasible routes and to decide on the best route. The best route is the most economical route which serves the purpose for which the road is being built. For purposes of our discussion at this workshop, we will assume that the primary value of the road will be for recreation purposes although other resources may also be served. We will also assume that some sort of economic analysis has been made to determine the standard of road to be designed.

Many times, the controlling factor in location is the maximum allowable grade. If this is the case, it is advisable to start the location from the high point of the road and work down. I am sure that most of you are familiar with the three types of road location, however let us briefly review these methods of locating a road.

1. "P" Line Location - This type of location is used where the country is steep and the topography difficult. The preliminary line is located as a control line as close as possible to the final location line. A profile and cross sections are then taken and the designer has in effect a strip map of the area. He can then shift the final "L" line until the desired alignment and balance is achieved.

2. Contour Location - This type of location is limited to those cases where a high degree of refinement is not required and where the topography lends itself to this type of road building. This type of location is strictly a side cast proposition where each section balances within itself. Short sections of balanced cut and fill may have to be introduced where the alignment crosses drainages.

3. Centerline Location - Centerline location is one in which the final centerline is established on the ground as the survey progresses. This type of location is applicable where the topography is flat or rolling. The desired vertical alignment is then achieved by cutting and filling to achieve a balanced design.

These are the three types of road location. Photogrammetry may be used, of course, to supply the strip map used in "P" line location. I think there probably is no need to go into more detail of these types of road location. I would like, instead, to introduce some concepts of road location and design which may be new to some of you. These concepts are particularly applicable to the location and design of recreation and scenic roads because they emphasize the aesthetic values of the road, the scenic corridor adjacent to the road and the country side. A road need not be ugly. Certain principles can be followed which will at least minimize the scars to the landscape and cause the road to blend in rather than stick out like a sore thumb. Many times I think we use the excuse that it is too costly to construct a "pretty" road.

In many cases it is cheaper to build a road that is aesthetically pleasing, provided the desire is there and certain new concepts are accepted. I am going to show you a few slides to illustrate some of the ideas that need to be incorporated in road location and design on recreation type roads.

This first slide illustrates the principle of environmental location. First you determine what the traveller will want to see and then locate the road accordingly. This road dips and turns to touch the points of interest. The bottom picture on this slide shows how a divided highway can be routed to provide enjoyable scenery and vistas for motorist both "coming" and "going". This concept would apply to parkways and roads of a major scenic nature.

The goal of good recreation road design is to produce a smooth flowing, continuous curvilinear pattern without abrupt kinks, humps, dips and brokenback tangents. The design speed need only alter the pattern by lengthening or shortening the average curve radius and length. This slide shows a typical horizontal alignment. If our roads are to be pleasing visually, we must discard the old method of establishing tangents and then connecting them with relatively short circular curves. This method produces the familiar "zig-zag" alignment which is offensive to the eye as well as difficult to drive on.

This next slide shows a preferable location of continuous curvilinear horizontal alignment. The use of a spline is very valuable in establishing this type of alignment. This "spline line" can be used as a sort of

"P" from which the basic circular curves and transition curves can be calculated. The transition curves need to be much longer than what is required for safe movement of traffic. The upper part of this slide shows a long tangent which should be avoided except when it is necessary to parallel existing streets or other controlling features.

The bottom half of the slide illustrates undesirable and desirable vertical alignment. At the top are vertical tangents connected by short vertical curves. As is the case with horizontal alignment this gives an abrupt, chopped-up appearance as well as an unpleasant riding quality. At the bottom of the slide, long vertical curves have been used to give a smooth flowing vertical alignment. The vertical curves have been lengthened far beyond that necessary for safe stopping distance or headlight sight distance. This slide shows examples of good and poor vertical alignment. The top two illustrations show short "sag" vertical curves with resulting unpleasant eye appeal. The middle two show abrupt humps or peaks in the grade. The bottom illustration shows good vertical alignment which is safe and visually pleasing.

Here we have an illustration of how a down grade can be used to open up an attractive view for the motorist. Up grades result in restricted views while down grades result in open views. The bottom of the slide shows a combination of pleasing horizontal and vertical alignment.

The vertical and horizontal alignment should contain curves of somewhat similar length. This prevents a long curve horizontal design from being

chopped up by a short curve vertical design. Excessive cuts and fills can usually be avoided by skillful location. The bottom picture on this slide is an example of poor vertical and horizontal alignment. It gives an appearance of disjointed curves and tangents.

Here are examples of good and poor transitions from cut to fill. The flattest slopes possible should be used with ample rounding to give a pleasing appearance.

This slide illustrates a cut with uniform backslopes, which gives a formal or "tunnel" type appearance. The backslopes can be warped in to blend in with the surrounding countryside. The slopes are flattened at the ends of the cut and steepened only in the heavy portion of the cut. Daylighting of cuts can often reveal a pleasing view to the traveller rather than looking at a bare backslope. This can also provide a convenient pull-off where the motorist can stop to enjoy the view.

This slide shows two types of bridges. The top one is constructed only long enough to span the road or waterway. The bottom one is longer and gives an open, pleasing appearance rather than the dark tunnel effect.

This slide illustrates how selective thinning of trees and brush can open up pleasant vistas to the tourist. This is most effectively done where the road curves. A thin screen of foregound trees is sometimes quite effective in adding drama to a pleasant view.

I have tried here to present some new concepts in road location and design as it relates to recreation type roads. Probably on many of our roads you will not have an opportunity to apply these concepts. They are ideas to be kept in mind when designing these roads. We may be surprised how many times we can improve the appearance of our roads without appraciable additional cost by the application of these principles.

SLIDE PRESENTATION WITH BRIEF NARRATIVE BY LLOYD PIERSON

OUTLINE: PRESERVATION, PROTECTION, AND ENHANCEMENT OF ARCHAEOLOGICAL AND HISTORICAL VALUES

I. Identify and Inventory

- a. Archeological Sites (Form 6230-2)
  - 1. Pottery
  - 2. Standing Walls
  - 3. Vegetation Changes
  - 4. Geometric Land Forms
  - 5. Trash
  - 6. Rock Shelters
  - 7. Pictographs and Petroglyphs
  - 8. Springs, waterholes, etc.
- b. Historical Sites (Form in preparation)
  - 1. As above plus.
  - 2. Documents & Publications
  - 3. Maps
  - 4. Informants

Protection. Once identified, protection is the problem.

- a. From people with:
  - 1. Signs
  - 2. Fences
  - 3. People
  - 4. Interpretation
  - 5. Public relations
- b. From nature with:
  - 1. Stabilization
  - 2. Restoration
  - 3. Salvage Excavation
  - 4. Flood Control
  - 5. Fire control and other
- c. From BLM developments like:
  - 1. Chaining
  - 2. Livestock grazing
  - 3. Logging operations
  - 4. Furrow and contour plowing
  - 5. Reservoirs
  - 6. Rights of way
  - 7. Roads
- d. Development alternatives
  - 1. Salvage excavate
  - 2. Move development
  - 3. Move historic house if possible
- e. Help.
  - 1. BLM Archeologists & Historians
  - 2. State Universities & Museums
  - 3. National Park Service

III. Enhancement

- 1. Recreation or Public Use
  - a. Good preservation
  - b. Unique
  - c. Large and impressive in size or area
  - d. Prime examples
  - e. High esthetic appeal
  - f. Available
  - g. Type sites
  - h. National landmarks
- 2. Excavate
- 3. Stabilize
- 4. Restore, or reconstruct and furnish
- 5. Interpret

G. DESIGN OF FACILITIES

LANDSCAPE ARCHITECT WORKSHOP

DESIGN FACILITIES

SITE PREPARATION

Second Day 1:00 - 2:30 Norm Waagen

I've taken the liberty of replacing the title word preparation with 'preservation', inasmuch as we strive to keep our recreation sites as natural as possible.

Webster defines the word homogeneous as: "of the same or a similar kind of nature". The relationship of recreation facilities to their immediate surroundings is an item of utmost importance in coming up with a homogeneous total picture.

As a friend of mine of several years put it - "I like to look at a recreation site and feel like it grew out of the ground" - sort of makes you want to brush off the table before you put food on it doesn't it? There is a point of merit to be derived from this however, and that is, if due consideration and study is given an area by a qualified person, the design, texture, color and actual construction will feel like they belong.

This brings about still another problem - the standardizing of our recreation facilities. I don't feel one or two standards will ever totally suffice due to the fact that each area is different - however common sense tells us we can't design a new toilet, table, grill or shelter everytime we design a new campground. One approach I feel would work is to create recreation zones - as an example; the Dona Ana Recreation Area in New Mexico does not need the same considerations for

facilities as Fort Mead Recreation Complex in South Dakota.

But by the same token, Hatch Point in Utah could, in all probability use the identical toilet, table or grill used at Dona Ana - design, texture and color.

Basic needs are similar - floor plan wise; the design, color and texture of materials, structural features (roof angle, upright supports and general fascade) can make the real difference. An excellent example of 'horror on the highway' is an "A" frame shelter I've seen recently, the apex of the "A" frame spires probably 30 feet in the air - in contrast to a back drop of low rolling hills - some barely visible. To add the final blow, they were painted a contrasting garish color.

Perhaps on the design table this had a great deal of merit, and even in certain area, such as Tent Rocks in New Mexico - but on the highway gainst a contrasting background it just didn't fit.

On several occasions I've heard the statement, "Of course we'll have to use the wood toilet rather than the split block because our recreation site is in the woods". More often than not this would be true except where a redwood toilet, with adequate preservative, sits in a grove of aspen and contrasts with its surroundings - it actually glows like a light in the night. Just because its wood does not create the homogeneous illusion we're after - perhaps - cement, or split block would have been better.

I'm sure we've all been guilty, to a degree, of saying - "let's use this plan, we've got plans, specifications and even have a cost estimate worked up on it". In desperation with time an important element involved, this has been done, I'm sure. Now as the recreation picture unfolds, and we become increasingly recreation oriented, a realization that we must produce more and better, faces us squarely.

To me, recreation preparation means preparing the area for visitor use by providing proper facilities and area design with consideration given to protecting the site from over-use or vandalism. This should be done without being obvious. I've discussed a few basic points of correlating design and facilities that I've wanted to bring out for some time.

ENGINEERING RECREATION SITE WORKSHOP

Denver, Colorado

September 21 and 22, 1967

WATER SUPPLY

By: Raymond J. Brossart, P.E.
Construction Engineer
Denver Service Center

DESIGN FACILITIES

Second Day 1:20 p.m. Sept. 22, 1967

WATER SUPPLY

The planning and design of a water supply system for recreation sites depends on several factors. We must first determine these factors and gather data before designing the system.

Demand - The first factor we must determine is the demand or how much water will be needed. The demand is determined from:

1. Number of family units planned
2. Intensity and frequency of use anticipated
3. Possible future expansion and demands

Source - The next factor is the water source. The information we need to know here is:

1. Location of source
2. Type of source - well, spring, or other, is it an existing source or proposed development.
3. Quantity of water available in G.P.M. and any fluctuation during season. For a well we should have the yield and drawdown data.
4. Quality of water
    (a) Bacterial quality - coliform count

(b) Physical quality - clarity, color, odor, taste

(c) Chemical quality - disolved minerals, etc.

We need to send a water sample to the State Health Department for a purity test.

From these results we can determine whether the water needs treatment.

Cost - Probably the next most important factor is the cost. How much money is available for water development and how elaborate a system is required?

Layout - The next factor we must consider is the layout of the recreation site. We must know the:

1. Location of hydrants, fountains, etc.
2. Type of terrain and soil
3. Proposed location of storage tank or other supply

Design - After we have gathered the data and determined the factors mentioned, we are ready to design the system. We must first decide what type of system will best satisfy the needs. Gravity, pressure, hand pump. The type of system will depend on:

1. Available power and type of power
2. Is soil rocky, terrain steep or flat.

After the type of system is determined we must determine the capacity of the system. This is determined from the number of family units or trailer parking units, etc. (Usually based on 15 GPD/Family Unit)

1. Storage tank capacity (should hold a minimum of three days supply.)
2. Pump size $$\text{H.P.} = \frac{\text{GPM x total head (ft)}}{\text{3960 x pump eff.}}$$
3. Pipe size

Typical System

Blackboard illustration

TYPICAL WATER SUPPLY SYSTEM

Demand

30 Family Units @ 15 GPD = 450 G.P.D.

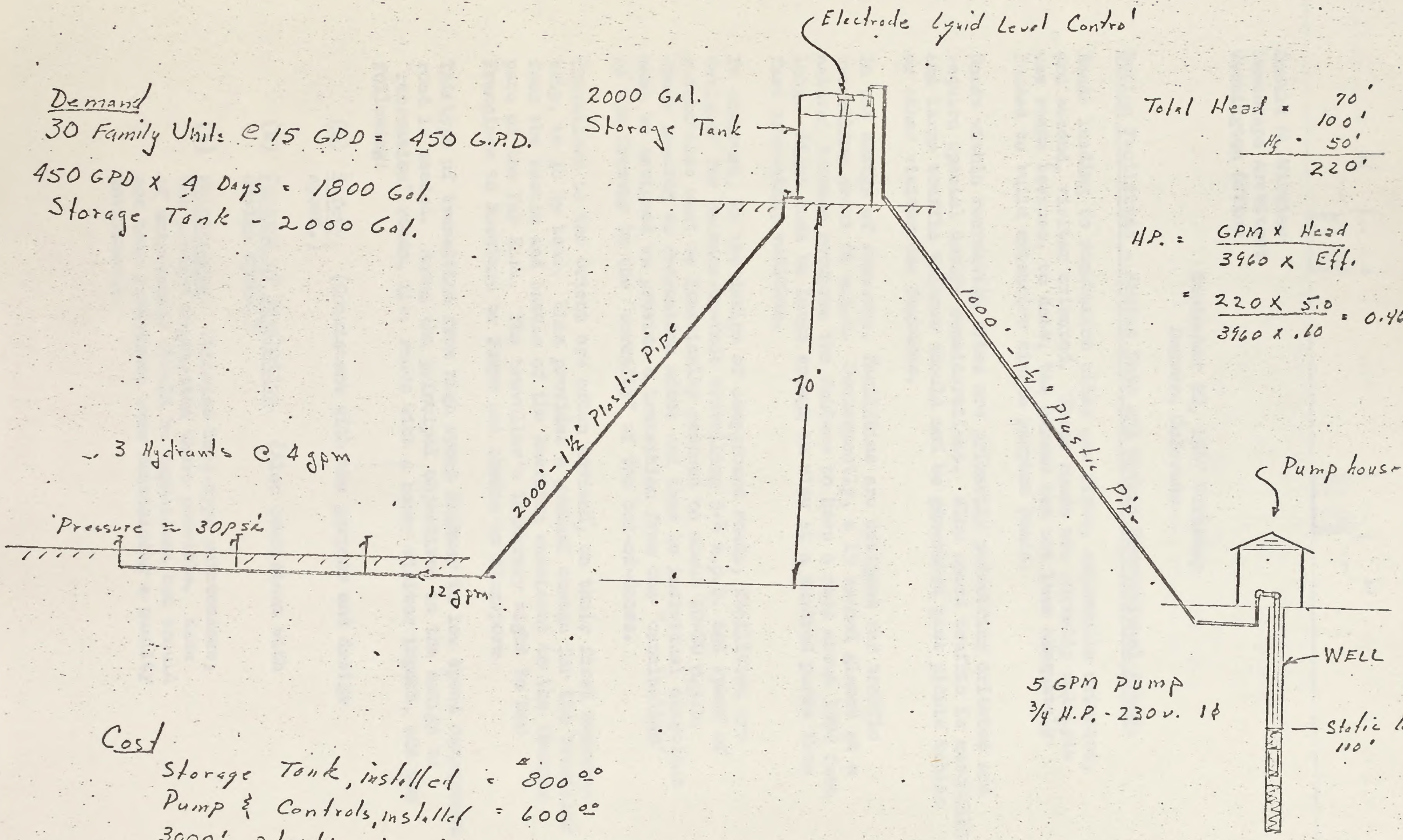
450 GPD x 4 Days = 1800 Gal.

Storage Tank - 2000 Gal.

Total Head = 70'
100'
H_f = 50'
220'

$$H.P. = \frac{GPM \times Head}{3960 \times Eff.}$$

$$= \frac{220 \times 5.0}{3960 \times .60} = 0.46$$



Cost

Storage Tank, installed	= 800.00
Pump & Controls, installed	= 600.00
3000' plastic pipe, installed	= 2250.00
Hydrants, galv. pipe, misc	= 200.00
Pumphouse	= 750.00
Total Cost	= 4600.00

Donald M. Winslow
Landscape Architect
Washington Office

September 22, 1967 Workshop
Denver, Colorado

Design Facilities - Access Into and Within Recreational Areas.

Roads leading to recreation sites are first, automobile oriented, and second, visitor oriented. These roads are normally multiple use roads because, to date, the Bureau has not been adequately funded to build extensive single purpose roads.

Roads within recreation sites are primarily pedestrian oriented and require special design considerations. Slow speed traffic is essential and large traffic volumes should not be generated past picnic tables or other visitor use features.

In the design of freeways, facilities are designed for traffic travelling about 60 m.p.h. Consequently, a 15 second glance at a natural feature requires the feature to have a mass about 1000 feet long. Signs must be large enough to view at a hundred yards from fast travelling vehicles.

In contrast, in the design of campground roads, facilities are designed for persons-on-foot travelling 3-4 m.p.h. and speed of automobiles must be drastically reduced to about 10-20 m.p.h. Roads leading to recreation sites and then to individual campsites must be designed to provide a transition from the "cannibalism" of the freeway to the "serenity" of the out-of-doors.

Travellers to the Orient are often advised, on their first overseas trip, to go by boat. This provides a gradual change for the traveller from the hustle and bustle of the American continent to the changed pace of the Far East. The traveller's itinerary might be San Francisco to Honolulu to Tokyo and thence to Singapore.

This type of transition from high speed highway to low speed campground road is needed. Among the principal objectives in the design of "recreation" roads, i.e. roads with a heavy visitor impact, are the following:

(1) Safety. (Consistent with the purpose and design speed.)

(2) Control of Aesthetics. (Also consistent with design speed.)

(3) Maintenance. Minimize hand-type maintenance, but protect vegetation where possible. Ease of maintenance should be emphasized but should not take precedence over maintaining a quality environment.

(4) Functional and Aesthetic Alinement. Recreation roads are generally complimentary to the topography, i.e. severe cuts, fills and thru-cuts are avoided if possible. Curved alinement should not be an end objective in itself, but is normally more interesting to the visitor. Long tangents with abrupt changes of alinement should always be avoided.

SCENIC ROADWAYS

Panel - Design Facilities

Kenneth F. Hansen

Roadway layout and design involves the road as seen in the landscape and the landscape as seen from the road. Both of these aspects, fortunately, are becoming consistently more considered in the roadway construction and improvement program.

In earlier days, roadway landscape admittedly was neglected because of costs and the absence of public interest. Today, it is recognized that recreation developments, roadside improvements and roadway landscape design require the close collaboration of the professional engineer and the trained landscape architect. To a large extent, this situation came about through the realization that many roads, and certainly all recreation roads, are more used by pleasure traffic than by commercial traffic. At the present stage of roadway landscape development or of roadside improvement, public support is increasing but still urgently needed. Further education, within and without our organization, is necessary if there is to be significant progress towards roadway beauty.

To avoid the inevitable conflicts between utility and appearance, the landscape architects should keep in constant touch with the surveys and designs of new roads and should follow their construction closely. This is fundamental in that good roadway landscape development

establishes better public relations, tends to increase the safety and utility of the roadway and the pleasure of the people using it. In general, good landscape design practice will preserve the natural character of each roadside as far as possible, and will conserve existing vegetation during construction. Where it becomes necessary to supplement the original undergrowth by new planting, it should be done with native material arranged in a uniform manner to merge smoothly into the natural landscape. Improved roadway appearance should not be considered as the final objective of roadside improvement but as a by-product of improved road design.

In this sense, the engineer also has a profound responsibility towards the aesthetic values of road design. The combination of profile and alignment is important for the landscape design as well as for traffic operations. The beauty of line may be lost if grade and line are not properly related. Lines "flowing with the country" with carefully placed profile changes are desired. Poorly placed grade changes can distort an otherwise beautiful curve; i.e., an invert change or bump in the profile of broad sweeping curve, visible across a valley, may mar the entire line of the road. Nor should the curve begin at a summit as it is better to suggest the change of direction before the road goes out of sight.

The effect of gradients upon the landscape aspect of the roadway is usually not as vital as is the effect of alignment. Unpleasant undulation of the grade line is to be avoided, and near scenic

vistas the grade should be flattened. Bearing in mind always the desirable combination of grade and curvature for safe operation, the landscape aspect of the gradient should always be reviewed. Occasionally, it may be desirable to design the grade and curvature for sudden "burst" of scenery or for spectacular effects.

In determining alignment and grade from the landscape viewpoint, the resulting design should reduce "side barrow" as much as possible and should provide for "end hauling" of excavated material to unavoidable fills and to sharp gullies, ravines, or canyons, even at some added expense for overhaul and waste. Exact balancing of cut and fill must be considered with the full effect on the landscape of any extensive side slopes. On steep slopes, landscape scar often can be reduced by judicious following of natural ridges, even though this design may result in some slight adverse grade. Good landscape design may sometimes warrant not only barrow and waste but considerable overhaul.

In summary, let us be aware that roadside improvement is an important feature of highway design. Along with the attractive roadside, often other objectives, such as, erosion control and safety, are interrelated. Most roadside improvement is involved in the original grading and should be included in its specifications. For scenic roads, a comprehensive landscaping design must be planned carefully and include flattening, rounding, and transition of slopes, and the use of barrow from concealed pits. Old roads, abandoned structures, visible barrow pits, etc., should be obliterated, reconditioned and often planted.

Panel Chairman
Dale Long
Panel Member
Ron Volz

Panel Member Subject PLANS & SPECIFICATIONS: DESIGN FACILITIES

Each state should have a copy of the proposed standard construction specifications. I would like to explain these specifications, but before I do that, I would like to give you a short history on these specifications. When I was in Dillon, Montana, I wrote specifications for the first campground in Montana. These specifications were based on the Forest Service Specifications. Hank Hammersmark informed me that these did not meet the BLM format. So he rewrote them and the following year we added more specifications and Hank improved them again. After I was transferred to the DSC, I realized we had the job of writing several campground contracts every year. This would be a time consuming job if everyone had to be written from scratch, so I decided to write some general specifications and use the Montana format. This was the start of these specifications you have in your hands today.

I would like to thank Hank Hammersmark for his unknowing assistance, as well as personnel from every state, PSC, and Tom Hayden of our Contracting Office who reviewed and commented on these specifications.

These specifications are in two parts: general and detailed. The general specifications usually cover more than one bid item. The detail specifications elaborate on only one bid item.

Any variables such as dimensions, sizes and quantities are left out of the specifications. Quanities such as number of tables to be built should be on the bid schedule and NO other place. Bill of materials can be on the drawings, but the trend is to leave this off of the drawings completely. I fully agree with this trend.

Specifications should be left off the drawings. Many times the written and the drawing specifications disagree.

Very little reference is made to Federal Specifications because most District personnel don't have them. Also I have found, especially in small towns, the suppliers don't know what they are either.

These specifications were written so there would be very little testing required. With a little 'horse sense' an inspector should be able to get a quality job done.

A few words about the drawings in a contract. The main purpose of a drawing is to show a contractor how to construct a particular structure. Hence, we should only include information needed by the Contractor and not information telling our own personnel how to locate a structure or other unmeaningful phrases.

A construction drawing as well as the specifications should be well drafted, clear, and concise. Another way of putting it, it is a well drafted letter and not a poem or literary prose.

A few words on compiling specifications and drawings for a contract. Detail specifications should be in the same order as the bid items on the bid schedule.

I believe there should be a drawing or drawings for every bid item, of course, this is not always possible. It is not good practice to put several different items on one drawing. This causes confusion such as which side view goes with what plan view. This is one reason why most of the drawings included in these specifications were drawn on 8 x 11 sheets. Also there is no reduction in size involved which has caused confusion.

Most of the drawings were drawn to scale even though there are no scales shown. This also eliminates confusion when drawings are reduced.

The DSC has all the original drawings in these specifications. If you ever need a reproducible copy of these drawings, we would be more than happy to furnish you with them.

I would like to give you a brief explanation of these specifications and later show you an example set of drawings.

H. CONSTRUCTION AND INSTALLATION OF FACILITIES

BLM-DSC Landscape Architect Workshop
Sept. 21-22, 1967
Denver, Colorado

2:45 - 3:00 Construction and Installation
Ground Location of Facilities and Access

Lynn T. Fergus Landscape Architect, Colorado

After the design is completed comes the problem of getting it on the ground. In order to get the design to fit the ground the way the designer intended, it must be tied effectively to the control established in the original survey. No matter how good a design is or how well it fits the landscape, if the man who goes out to stake it on the ground does not have something to tie to and get the proper orientation to the site, it just won't work.

When the staking is done the man who did the design should be on the ground. There is always a rock outcrop you didn't notice or a group of trees that could be saved if the layout were changed just slightly.

The final location of the tables, grills, tent pads and parking spurs should be left until the actual staking on the ground. This is the only way to get them to fit the site properly.

The mechanics of transferring the design can be accomplished in several ways. I prefer to do it with a plane table and allidade from a plan

laid out at 1" = 50 feet or 1" = 40 feet. Any changes or adjustments are placed on the plan at that time and incorporated into the final drawings.

ENGINEERING RECREATIONAL WORKSHOP

DENVER, COLORADO

September 21 & 22, 1967

CONSTRUCTION STAKING
FOR RECREATION SITES

Gerald L. Jossen
Design & Construction Engineer
Wyoming State Office

CONSTRUCTION STAKING FOR RECREATION SITES

There are four general areas of construction staking: Staking for Clearing, Roadway Staking, Building and Shelter Staking, and Borrow Area Staking.

1. **Clearing:** The centerline of roadway loops and shelter areas are usually flagged. The contractor then clears perpendicular to the flags a certain distance. In critical areas, the outside boundary or all the trees in the clearing area are marked with flagging or paint.

2. **Roadway Staking:** Set centerline stakes a maximum of 100 feet, 50 feet or 25 feet on curves. In minor cuts or fills, less than 3 feet, set grade stakes on one edge of the roadway, and in critical areas on both edges of the roadway. For cuts and fills exceeding 3 feet, set slope stakes to control any excess movement of material. Use standard staking procedures for all drainage locations.

3. **Building and Shelter Staking:** Set all corner stakes of buildings and shelters. This will eliminate any errors by the contractor or the inspector that might result in getting the facility turned 90 degrees.

4. Borrow Area Staking: Stake borrow areas, waste areas, etc. The borrow areas should have been surveyed during the detailed field investigation. The construction staking is required to keep the contractor within the desired area and to set final datum line. After the construction is completed it is simple to re-crossection the area off of the reference stakes.

To determine the need for construction staking, the quality and quantity is controlled by three general factors: the size of the project, the amount of data acquired during the site survey, and the method of construction.

1. The size of the project: A large campsite with many different facilities spread over a large area needs to be staked for construction in great detail. In the opposite light a small site with little road construction and a small number of facilities probably can be done adequately with centerline staking of the road and flagging the shelter site locations.

2. Data acquired during the site survey: Construction stakes can be set in detail only when there has been detailed information taken and many reference points set at the time of the site survey. It is impossible to establish the road location with transit and tape, setting grade and slope stakes every 50 to 100 feet if, at the time

of the site survey, no reference stakes were set. This is one reason the manual calls for the establishment of a base line. During the office design of the site, all turn and corner points can be referenced to the base line.

3. Method of construction: The major point in determining the type and number of construction stakes set is who is to construct the site and who is to supervise the project. The staking can be lessened in detail and number if the district's force account crew is doing the erection of the facilities and building the road instead of a contractor, or if the district's top engineer is doing the inspection instead of a technician. The control of the construction is determined either by the construction stakes or by the inspector. One has to supplement the other.

In summary, it should be noted that the type and amount of construction staking should be determined by qualified engineers. At no time should the staking be cut in content for convenience, but should only be limited by need.

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Design & Construction Engineer
Wyoming State Office

ENGINEERING RECREATIONAL WORKSHOP

at

Denver, Colorado

September 21 & 22, 1967

INSPECTION OF WORK
DURING CONSTRUCTION

Presented by:

J. Duane Tabb
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New Mexico State Office

INSPECTION OF WORK DURING CONSTRUCTION

Inspection may well be the single most important item for the successful completion of any contract. The final product can be no better than the inspector's efforts provide. A good inspector is not necessarily one who insures specifications are followed to the letter. He must also be a human relations expert in that he must discharge his responsibilities in such a manner that the contractor respects his judgment, knows he is being treated in a just manner, and is aware he cannot get away with "cutting corners". The inspector also acts as the liaison between the contractor and Contracting Officer, and in this capacity, must act promptly and accurately. Many things are involved; among them are change orders, certificate for contract payment, stop and resume orders, payrolls, and labor requirements.

The inspector's job in the BLM organization includes, but is not limited to, the following:

1. Construction staking.
2. Testing.
3. Adequate inspection to insure compliance with the specifications.
4. Liaison between Contractor and Contracting Officer.
5. Contract log.
6. Labor compliance checks.
7. As-built drawings.

The contract log must contain all information pertinent to the contract, including weather, men and equipment used, discussions with the contractor,

disputes with the contractor (including their resolution), test data, arrival of materials on the site, daily work accomplishments, labor interviews, length of stay and pertinent comments of visitors to the site (District, State, DSC or WO), and any other information that might be helpful in the event of a later dispute.

The contract file, with the log, is retained for six years and can be invaluable in a hearing. A good rule of thumb for contract logs is: "when in doubt--enter it", even though it may appear unimportant at the time. The quality of the log frequently directly affects the outcome of a hearing. It is good practice to make your log entries as soon as possible after occurrence of the event, and at least at the end of each day. Don't trust your memory, as none of us are infallible. The logs must be kept in ink and signed (not initialled) daily by the inspector.

Recreation contracts in themselves are indeed a challenge to the BLM inspector as he frequently has to be half-a-dozen places at once due to the job complexity. Recreation contract inspection cannot be taken lightly and a qualified inspector must be made available. Recreation contracts may include clearing and grubbing, grading, surfacing, water supply systems, concrete work, facility construction, landscaping, diversion dikes or dams, fencing, building construction, boat ramp construction and various miscellaneous items. To complicate matters, the prime contractor frequently will subcontract those items he is not set up to do. It then is conceivable that many of these items are being accomplished simultaneously, which can push an inspector beyond the limits of his capabilities.

Since most states do not have a workload sufficient to support a full time landscape architect, they must rely on Service Center Design. While these designs normally fit quite well, it is probable that the inspector will have to make limited changes to make the plan fit the ground. He must first determine where, and if, these changes are necessary, and if so, must accomplish the change rapidly and in a manner which will least affect the total design. We must all accept this in stride and realize that a design made several hundred miles from the site, based on information obtained by someone else, will inevitably require a limited amount of on-site adjustment and cannot be any better than the original information furnished by the District.

How/ minimizing this problem

In summary, due to the job complexity, the inspector must be the best qualified man available. He must have at his disposal all equipment necessary to make required tests and to set construction stakes on the job. He must be aware of all contract procedures and labor requirements. He must insure that specifications are followed and efficiently make necessary changes for those few impossible situations which may arise. While the inspector has little or nothing to do with the design, he is the necessary link to success or failure of any construction project.

ENGINEERING RECREATIONAL WORKSHOP

Denver, Colorado

September 21-22, 1967

ACCEPTANCE OF COMPLETED CONTRACT JOB

H. T. Hammersmark
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Acceptance of Completed Contract Job

Acceptance of a completed contract job is made when the Contracting Officer or authorized representative has inspected the work and found that all materials have been furnished, all the work has been performed, and all the construction, as provided by the contract, has been completed and any necessary cleanup or restoration of the work area is made.

Divisions of a contract job may be accepted prior to completion of the total job, and progress payments made. All materials and work covered by progress payments shall become the sole property of the government, but the contractor is still responsible for all materials and work upon which progress payments have been made, or for the restoration of any damaged work, until the contract requirements have been fulfilled.

The certificate for final payment has a space for the date when the work was substantially completed, and also a space for the date of final acceptance. Normally, these dates would be the same, but there are cases when final acceptance is several days later. The calendar days charged against the contract time would end on the date the work was substantially completed. The difference in these two dates, if any, would be the time spent on cleanup and correcting minor deficiencies.

In order for the government to promptly make final acceptance of a contract depends largely on the quality of the contract inspection. If the inspector has provided complete inspection of all work and materials required by the contract, there is no reason for delays due to correction of work or materials not conforming to contract requirements.

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